



PATENT
Atty. Docket No. 29997/035A

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JFW

**IN THE UNITED STATES PATENT AND TRADEMARK OFFICE
BEFORE THE BOARD OF PATENT APPEALS AND INTERFERENCES**

Applicant(s): Malackowski et al.

Serial No.: 09/764,609

Filed: January 17, 2001

For: Surgery System

Group Art Unit: 3739

Examiner: John P. Leubecker

Certificate of Mailing

I hereby certify that this paper is being deposited with the United States Postal Service with sufficient postage as first class mail in an envelope addressed to: Mail Stop Appeal Brief-Patent, Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450 on this date:

August 4, 2005


J. William Frank, III

Reg. No. 25,626.

Attorney for Applicant(s)

Response to Notification of Non-Compliant Appeal Brief

Mail Stop Appeal Briefs-Patent
Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Sir:

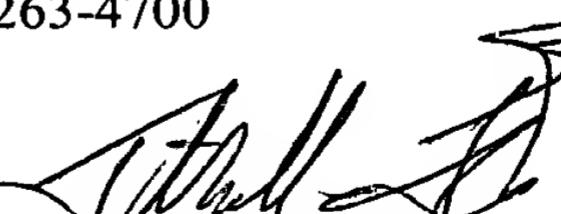
Responsive to the Examiner's Notification of Non-Compliant Appeal Brief dated July 29, 2005 attached herewith is Applicant's Appeal Brief.

The fee for said Brief was paid with originally submitted Appeal Brief dated June 28, 2005.

Respectfully submitted,

McCracken & Frank LLP
200 West Adams, Suite 2150
Chicago, Illinois 60606
(312) 263-4700

By:


J. William Frank, III
Reg. No: 25,626

August 4, 2005
Customer No. 29471

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IN THE UNITED STATES PATENT AND TRADEMARK OFFICE
BEFORE THE BOARD OF PATENT APPEALS AND INTERFERENCES

Applicant(s): Malackowski et al.

Serial No.: 09/764,609

Filed: January 17, 2001

For: SURGERY SYSTEM

Group Art Unit: 3739

Examiner: John P. Leubecker

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Customer No.: 29471

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August 4, 2005



J. William Frank, III
Registration No. 25,626
Attorney for Applicant(s)

APPEAL BRIEF

Mail Stop Appeal Brief-Patent
Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Sir:

Party in Interest

The real party in interest in this appeal is Howmedica Liebinger, Inc. a Delaware company with an office at 4100 East Milham, Kalamazoo, MI 49001, doing business as Stryker Liebinger.

Related Appeals and Interferences

None.

Status of Claims

Claims 1, 3-23, 25-29, 31-34, 80-100, 102, and 105-106 are pending in this application and have all been finally rejected.

Status of Amendments to Claims

Amendments to the claims filed in the response dated April 26, 2005 have been entered for purposes of this appeal. An amendment to the abstract filed in the same response has also been entered for the purpose of this appeal.

Summary of Claimed Subject Matter

The present application has three independent claims: claims 1, 23, and 29. Claims 2-22, and 80-83 are dependent on claim 1. Claims 25-28, and 84-90 are dependent on claim 23. Claims 31-34, 91-100, 102, and 105-106 are dependent on claim 29.

Claim 1 is directed to a smart instrument (FIG. 1, 102) for use with a surgical navigation system (FIG. 1, 100). The smart instrument includes a housing (FIG. 4, 402), and a plurality of light emitting diodes (FIG. 2, 202a, 202b, 202c, 202d, and 202e) adapted to fire independently (Page 36, Lines 17-18) (Note: All line numbers correspond to the numbers printed in the left margin of the specification as filed, not the actual line count on each page).

The instrument also includes a memory circuit to store information related to the smart instrument (Page 14, line 29 – Page 15, Line 6) and a wireless transceiver (FIG. 2, 204) to communicate with the surgical navigation system (FIG. 12, 1204) (Page 11, Lines 5-6).

Further, bi-directional communication between the instrument and the surgical navigation system (Page 10, Lines 26-27) is solely through a wireless communication system (Page 10, Lines 12-15) and also, the smart instrument transmits the information stored on the memory circuit in response to a received signal from the surgical navigation system when the smart instrument is placed within a field of detection (Page 15, Lines 14-19) (Page 22, Lines 5-15) (FIG. 17, 1702).

Claim 23 is also directed to a smart instrument (FIG. 1, 102) for use in a surgical navigation system (FIG. 1, 100). The smart instrument includes a housing (FIG. 4, 402), and a plurality of light emitting diodes (FIG. 2, 202a, 202b, 202c, 202d, and 202e) adapted to fire independently (Page 36, Lines 17-18). The smart instrument also includes a memory circuit to store information related to the smart instrument (Page 14, line 29 – Page 15, Line 6) and a wireless transceiver (FIG. 2, 204) to communicate with the surgical navigation system (FIG. 12, 1204) (Page 11, Lines 5-6). Also, the smart instrument has an activation button (FIG. 2, 214), an adapter interface (FIG. 2, 210) coupled to the housing (Page 13, Lines 9-14); and a release button (FIG. 2, 212) operatively coupled to the adapter interface. The smart instrument can be interchangeably coupled with a patient tracking system and at least one generic instrument (Page 14, Lines 17-25). Further, bi-directional communication between the instrument and the surgical navigation system (Page 10, Lines 26-27) is solely through a wireless communication system (Page 10, Lines 12-15). Also, the smart instrument transmits the information stored on the

memory circuit in response to a received signal from the surgical navigation system when the smart instrument is placed within a field of detection (Page 15, Lines 14-19) (Page 22, Lines 5-15) (FIG. 17, 1702).

Claim 29 is directed to a smart instrument (FIG.1, 102) for use with a surgical navigation system (FIG. 1, 100). The smart instrument includes a housing (FIG. 4, 402), and a plurality of light emitting diodes (FIG. 2, 202a, 202b, 202c, 202d, and 202e) adapted to fire independently (Page 36, Lines 17-18). The smart instrument also includes a memory circuit to store information related to the smart instrument (Page 14, line 29 – Page 15, Line 6) and a wireless transceiver (FIG. 2, 204) to communicate with the surgical navigation system (FIG. 12, 1204) (Page 11, Lines 5-6). Also, the smart instrument has plurality of control buttons (FIG. 6, 608, 610, and 612) for remotely controlling the surgery system; and a work tip (FIG. 6, 614) coupled to the housing.). Further, bi-directional communication between the instrument and the surgical navigation system (Page 10, Lines 26-27) is solely through a wireless communication system (Page 10, Lines 12-15). Also, the smart instrument transmits the information stored on the memory circuit in response to a received signal from the surgical navigation system when the smart instrument is placed within a field of detection (Page 15, Lines 14-19) (Page 22, Lines 5-15) (FIG. 17, 1702).

Grounds of Rejection

All claims have been finally rejected under 35 U.S.C. §103(a) as unpatentable over U. S. Patent No. 5,617,857, Chader et al., hereafter “Chader.”

All claims have been finally rejected under 35 U.S.C. §103(a) as unpatentable over Chader combined with U. S. Patent No. 6,453,190, Acker et al., hereafter “Acker.”

Argument

Grouping of Claims

Claims 1 and 29, along with their dependent claims, stand and fall together. Claim 23 and the claims dependent thereon should be separately considered, and do not stand and fall with either claim 1 or 29.

Claims 1 and 29, and the claims dependent thereon are not rendered obvious under 35 U.S.C. §103(a) by Chader.

A) The examiner has not met his burden of setting out a *prima facie* case of obviousness of claim 1 and the claims dependent thereon as required under 35 U.S.C. §103(a).

In rejecting claim 1, the examiner has focused on the differences between claim 1 and the disclosure of Chader without properly considering either the invention of claim 1 as a whole or the disclosure of Chader as a whole. The Chader disclosure only contemplates or discloses a smart instrument that is hard wired to the computer system. The examiner considers modifying Chader to be a wireless system a choice between one of two alternatives, namely wired and wireless (Paper 24, Paragraph 3). However, as has been previously argued, there were wireless systems in widespread use at the time the Chader invention was made. For instance, devices similar to the Acker secondary reference were well known at the time the Chader invention was made. If it were an easy expedient, Chader would have described both wired and wireless systems. However, this seemingly simple binary approach ignores the fundamental design strictures in the system described in Chader. In Chader, there must be a physical act of connecting the device to the system for the system to recognize the device (Chader, Col 6, lines 56-60). Chader never disclosed or suggested the concept of recognizing the device and beginning the act of querying the device as required by claim 1 when the device is placed within the field of view of the system.

“In determining the propriety of the Patent Office case for obviousness in the first instance, it is necessary to ascertain whether or not the reference teachings would appear to be sufficient for one of ordinary skill in the relevant art having the reference before him to make the proposed substitution, combination, or other modification.” *In re Linter*, 458 F.2d 1013, 1016, 173 USPQ 560, 562 (CCPA 1972). (MPEP §2143.01) Obvious to try is not the appropriate test of obviousness, rather a person of ordinary skill in the art must have a reasonable expectation of success based on reading the cited reference (MPEP §2143.02)

B) Even if the examiner has made out a *prima facie* case of obviousness under 35 U.S.C. §103(a), the examiner has not properly considered or rebutted the evidence submitted by applicants.

Applicants submitted evidence in the form of two declarations to the examiner showing the unobvious nature of the invention as claimed. A copy is attached as a part of the Evidence Exhibit. The examiner has dismissed this evidence as including “statements which

amount to an affirmation that the claimed subject matter functions as it was intended to function.” On the contrary, the declarations provide evidence that shows the difficulties created by the prior Chader type devices in a surgical setting and the unobvious benefits of the devices as claimed in claim 1. For this added reason, it is contended that the final rejection of claims 1 and 29 and the claims dependent thereon is unwarranted and should be reversed by the Board.

Claim 23 and the claims dependent thereon are not rendered obvious under 35 U.S.C. §103(a) by Chader.

A) The examiner has not met the requisite burden of setting out a *prima facie* case of obviousness of claim 23 and the claims dependent thereon as required under 35 U.S.C. §103(a).

Claim 23 includes an additional element, namely “a release button operatively coupled to the adapter interface, wherein the smart instrument is adapted to be interchangeably coupled with a patient tracking system and at least one generic instrument.” The examiner has not shown such a release button present in the device disclosed in Chader. The only release button described in Chader is to enable the device to be coupled to the hard wired harness. This is something that the examiner states would be obvious to remove from Chader. Without the hard wiring as described in Chader, there would be no need for a release button. Further, there is no disclosure or suggestion of the interchangeable feature as set forth in claim 23. For this reason, it is contended that the examiner has failed to meet the burden of showing a *prima facie* case of obviousness as required.

Claims 1 and 29, and the claims dependent thereon are not rendered obvious under 35 U.S.C. §103(a) based on the modification of Chader with the teaching of Acker.

The examiner has not shown any motivation that would lead one of ordinary skill in the art to modify the teaching of Chader with the teaching of Acker. Chader has been discussed above and these arguments also apply to the modification of Chader by Acker.

The Acker device is a variant on a well known magnetic system that was well known at the time of the Chader invention. As noted above the inventors in Chader would have been well aware of these magnetic systems and their wireless capabilities. However, the systems

of the type disclosed in Acker do not transmit data relative to the configuration of these magnetic devices to the receiving unit. These units merely transmit magnetic fields that are detected and interpreted by the receiving unit to determine the location of the sending unit. This is sending position or location information in a wireless manner and not the sending of data and instructions as in the present invention. While the examiner maintains that it would have been well within the level of skill to make the system of Chader wireless, the invention as defined in claim 1 would not have been in the possession of one of ordinary skill. At the time of the Chader invention and at the time the present invention was made, it would have been recognized that the amount of data that needed to be transferred between the instrument and the systems necessitated a hard wired systems for the type of systems as claimed. The examiner has dismissed this argument as opinion by applicant, but the opinion that this difficulty could easily be overcome is also an unsupported assertion on the part of the examiner. It is maintained that the examiner has failed to present a *prima facie* case of obviousness of claim 1 based either on Chader alone or Chader in combination with Acker.

Claim 23 and the claims dependent thereon are not unpatentable under 35 U.S.C. §103(a) based on the combined teaching of Chader and Acker.

As with claims 1 and 29 discussed above, there is no motivation to combine the disclosures of Chader and Acker to arrive at the invention as claimed in claim 23. Acker does not disclose an interchangeable feature nor does Chader. Neither document nor the combination of these documents suggest or would lead a person of ordinary skill to the invention as claimed in claim 23. The functionality as presently claimed in claim 23 is not shown in either cited document and therefore there can be no suggestion of claim 23 by Chader and Acker. Therefore, this rejection should be reversed by the Board.

Conclusion

The examiner has failed to meet the burden required by 35 U.S.C. 103(a) to show that the invention of the claims under appeal would have been obvious to one of skill in the art at the time the invention was made based either on Chader alone or the combination of Chader and Acker. Further, the examiner has not properly considered the evidence that was

submitted and the examiner has summarily dismissed this evidence without proper consideration.

Therefore the final rejection of all claims should be reversed by the Board and this application passed to issue.

Respectfully submitted,

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By: 

J. William Frank, III
Reg. No: 25,626

August 4, 2005

Appl. No. 09/764,609
Appeal Brief dated August 4, 2005
Reply to Notice of July 29, 2005



Claims Appendix

Claims:

1. A smart instrument for use in a surgery system, comprising:
 - a housing;
 - a plurality of light emitting diodes coupled to the housing and being adapted to fire independently;
 - a memory circuit for storing information related to the smart instrument; and
 - a wireless transceiver adapted to communicate with the surgery system, wherein bi-directional communication of the smart instrument with the surgery system is solely through a wireless communication system and wherein the smart instrument transmits the information stored on the memory circuit in response to a received signal from the surgery system when the smart instrument is placed within a field of detection.
3. The smart instrument of claim 1, wherein the information includes identification information.
4. The smart instrument of claim 1, wherein the smart instrument includes a status light.
5. The smart instrument of claim 1, wherein the smart instrument is adapted to be for a specific purpose.
6. The smart instrument of claim 1, wherein the smart instrument is adapted to be used as a pointer.
7. The smart instrument of claim 1, wherein the smart instrument is adapted to be used as a scalpel.
8. The smart instrument of claim 1, wherein the smart instrument is adapted to be used as a probe.

9. The smart instrument of claim 1, wherein the smart instrument is adapted to be used as a validation tool for other smart instruments.
10. The smart instrument of claim 1, wherein the smart instrument is adapted to be used as a suction device.
11. The smart instrument of claim 1, wherein the smart instrument is adapted to be used as a pin.
12. The smart instrument of claim 1, wherein the smart instrument is adapted to be used as a clamp.
13. The smart instrument of claim 3, wherein the smart instrument is adapted to be interchangeably coupled with a plurality of generic instruments.
14. The smart instrument of claim 3, wherein the smart instrument is adapted to be interchangeably coupled with a patient tracking system.
15. The smart instrument of claim 3, wherein the smart instrument is adapted to be interchangeably coupled with a patient tracking system and at least one generic instrument.
16. The smart instrument of claim 1, wherein the smart instrument includes an activation button.
17. The smart instrument of claim 3, wherein the smart instrument includes an activation button.
18. The smart instrument of claim 17, wherein the information includes a status of the activation button.

19. The smart instrument of claim 1, wherein the smart instrument includes a plurality of control buttons for remotely controlling the surgery system.

20. The smart instrument of claim 3, wherein the smart instrument includes a plurality of control buttons for remotely controlling the surgery system.

21. The smart instrument of claim 20, wherein the information includes a status of control buttons.

22. The smart instrument of claim 1, wherein the smart instrument includes an up button, a select button, and a down button.

23. The smart instrument for use in a surgery system, comprising:
a housing;
a plurality of light emitting diodes coupled to the housing and being adapted to fire independently;
a memory circuit for storing information related to the smart instrument;
a wireless transceiver adapted to communicate with the surgery system;
an activation button;
an adapter interface coupled to the housing; and
a release button operatively coupled to the adapter interface,
wherein the smart instrument is adapted to be interchangeably coupled with a patient tracking system and at least one generic instrument, wherein bi-directional communication of the smart instrument with the surgery system is solely through a wireless communication system; and wherein the smart instrument transmits the information stored on the memory circuit in response to a received signal from the surgery system when the smart instrument is placed within a field of detection.

25. The smart instrument of claim 24, wherein the information stored on the memory circuit is updated by the surgery system.

26. The smart instrument of claim 24, wherein the information stored on the memory circuit includes calibration information.

27. The smart instrument of claim 26, wherein the calibration information is updateable using a calibration station.

28. The smart instrument of claim 24, wherein the smart instrument further includes a validation point for validating other smart instruments.

29. A smart instrument for use in a surgery system, comprising:
a housing;
a plurality of light emitting diodes coupled to the housing and being adapted to fire independently;
a memory circuit for storing information related to the smart instrument;
a wireless transceiver adapted to communicate with the surgery system;
a plurality of control buttons for remotely controlling the surgery system; and
a work tip coupled to the housing, wherein bi-directional communication of the smart instrument with the surgery system is solely through a wireless communication system, and wherein the smart instrument transmits the information stored on the memory circuit in response to a received signal from the surgery system when the smart instrument is placed within a field of detection.

31. The smart instrument of claim 30, wherein the information stored on the memory circuit is updated by the surgery system.

32. The smart instrument of claim 30, wherein the information stored on the memory circuit includes calibration information.

33. The smart instrument of claim 32, wherein the calibration information is updateable using a calibration tool.

34. The smart instrument of claim 29, wherein the smart instrument further includes a validation point for validating other smart instruments.

80. The smart instrument of claim 1, wherein the information stored on the memory circuit is updated by the surgery system.

81. The smart instrument of claim 3, wherein the information stored on the memory circuit includes calibration information.

82. The smart instrument of claim 81, wherein the calibration information is updateable using a calibration station.

83. The smart instrument of claim 9, wherein the smart instrument further includes a validation point for validating other smart instruments.

84. The smart instrument of claim 23, wherein the information includes identification information.

85. The smart instrument of claim 84, wherein the smart instrument includes a status light.

86. The smart instrument of claim 84, wherein the smart instrument is adapted to be interchangeably coupled with a patient tracking system.

87. The smart instrument of claim 84, wherein the smart instrument is adapted to be interchangeably coupled with a patient tracking system and at least one generic instrument.

88. The smart instrument of claim 87, wherein the smart instrument includes an activation button.

89. The smart instrument as set forth in claim 84, wherein the information also includes calibration information.

90. The smart instrument of claim 88, wherein the information includes a status of the activation button.

91. The smart instrument of claim 29, wherein the information includes identification information.

92. The smart instrument of claim 29, wherein the smart instrument includes a status light.

93. The smart instrument of claim 29, wherein the smart instrument is adapted to be used as a pointer.

94. The smart instrument of claim 29, wherein the smart instrument is adapted to be used as a scalpel.

95. The smart instrument of claim 29, wherein the smart instrument is adapted to be used as a probe.

96. The smart instrument of claim 29, wherein the smart instrument is adapted to be used as a validation tool for other smart instruments.

97. The smart instrument of claim 29, wherein the smart instrument is adapted to be used as a suction device.

98. The smart instrument of claim 29, wherein the smart instrument is adapted to be used as a pin.

99. The smart instrument of claim 29, wherein the smart instrument is adapted to be used as a clamp.

100. The smart instrument of claim 29, wherein the smart instrument includes an activation button.

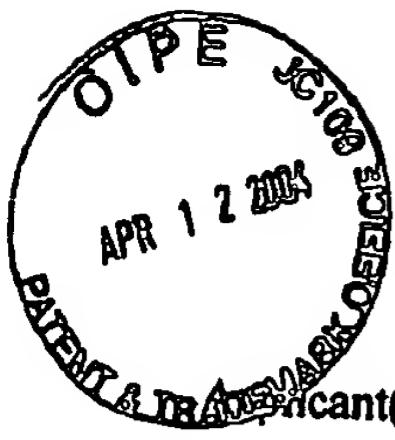
102. The smart instrument of claim 100, wherein the information includes a status of the activation button.

105. The smart instrument of claim 104, wherein the information includes a status of the control buttons.

106. The smart instrument of claim 29, wherein the smart instrument includes an up button, a select button, and a down button.

Evidence Appendix

The declarations were submitted with the Rule 116 Amendment dated April 5, 2004. The Advisory Action of May 7, 2004, indicated that the declarations were considered (Box 5 of the PTOL-303 form).



IN THE UNITED STATES PATENT
AND TRADEMARK OFFICE

Applicant(s): Malakowski, et. al.

Serial No.: 09/764,609

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Examiner: Leubecker

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TECHNOLOGY CENTER R3700

Declaration of Dr. Jay H. Klarsfeld, M.D. made under Rule 132

I, Jay H. Klarsfeld declare as follows:

1. That I am a surgeon specializing in Otolaryngology (ear, nose, and throat) and my Curriculum Vitae outlining my education and specializations is attached as Exhibit A.
2. That I am currently a consulting surgeon for the Stryker Corporation, a related entity to the assignee of the present application.
3. That I am familiar with the use of surgical navigation systems and instruments in the ear, nose and throat area and in particular in sinus surgery and I have used a number of different surgical navigation systems in the past including passive navigation tracking systems and a system that uses wireless hand pieces of the type as claimed in the present application. As noted in my Curriculum Vitae, I have lectured on the use of image guided technology (surgical navigation) for sinus and other surgeries.
4. That I understand that the present patent application is claiming the use of wireless communication between the surgical navigation system and the individual instruments in combination with other elements of the currently pending claims

5. That I understand that the current application has been rejected because the invention as claimed is considered obvious in view of a patent that discloses a wired or tethered instrument communicating with a surgical navigation system.

6. That I believe that the use of wireless communication between an active smart instrument and a surgical navigation system has been recognized as a significant advance today and I believe it would not have been considered as obvious on January 27, 2000 for the reasons set forth below:

a. The use of a wireless system simplifies the setup prior to a typical ear nose and throat surgery such as a sinus surgery, and after using a wireless system, I would not use a hard wired optical system;

b. In sinus surgery there are a large number of instruments and devices in the surgical field that require power cords, suction tubes and the like. A listing of the typical instruments that are often simultaneously present in the surgical field for sinus surgery is attached as Exhibit B. A typical hardwired system will add from 3 to 5 wires to the surgical field.

c. The use of a wireless hand piece that can be tracked by the surgical navigation system is much less cumbersome and provides a significantly greater range of motion to me in performing these surgical techniques allowing me to perform these tasks properly, in less time, and with lower fatigue. A wired hand piece has a wire that drags, can catch on other instruments and wires, and will actually pull against the direction I need to move the hand piece. In addition, for optical systems, it is important to be able to face the tracking device towards the camera at all times. The inclusion of wires make it more difficult to properly angle the tracking device so the device is visible to the cameras.

d. The use of a wireless hand piece minimizes issues relating to maintenance of the surgical field in a sterile state because there is no requirement to pass a portion of the cord to a technician to attach the hand piece to the surgical navigation computer.

e. In my view the wireless, hardwired issue is so important that a number of companies that make tracking implements and devices have abandoned hard-wired active optical systems in favor of passive wireless optical systems and have not developed wireless active optical tracking devices as claimed in the present application.

7. I hereby declare that all statements made herein of my own knowledge are true and that all statements made on information and belief are believed to be true; and further that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under 18 U.S.C. §1001 and that such willful false statements may jeopardize the validity of the above referenced application or any patent issued thereon.

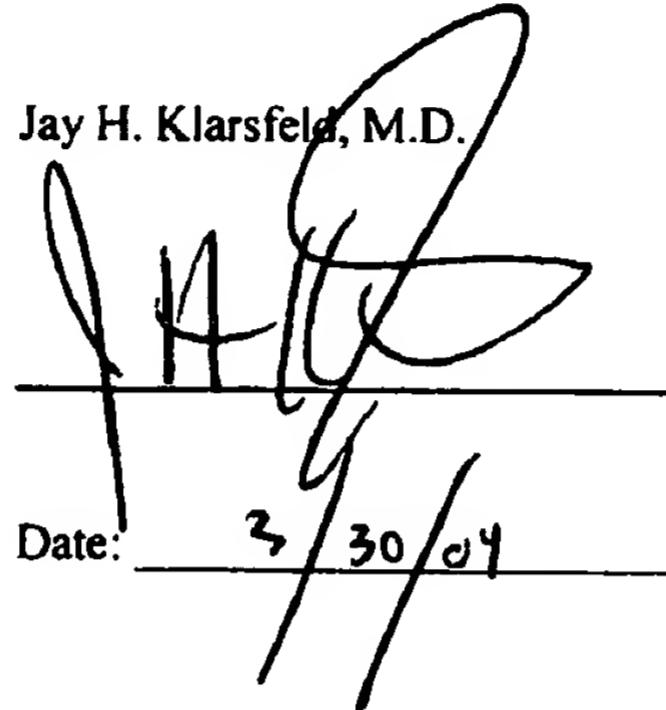
Jay H. Klarsfeld, M.D.

Date: 2/30/04

Exhibit A
Curriculum Vitae

Jay H. Klarsfeld, M.D.

HOME ADDRESS

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BOARD CERTIFICATION

Fellow of the American Academy of Otolaryngology
Head and Neck Surgery – 1986

EDUCATION

1977 Brandeis University – Double Major – Biochemistry and Biology
1981 Mount Sinai School of Medicine – M.D.

POST GRADUATE TRAINING

1979 - Anesthesia Preceptor Program. The Mount Sinai Medical Center, New York
1981 – 1982 Internship General Surgery. The Mount Sinai Medical Center, New York
1982 – 1983 Resident General Surgery. The Mount Sinai Medical Center, New York
1983 – 1985 Resident, Department of Otolaryngology. The Mount Sinai Medical Center, New York
1985 – 1986 Chief Resident, Department of Otolaryngology. The Mount Sinai Medical Center, New York

EMPLOYMENT

1994 – Present President, Advanced Specialty Care, P.C. – Multi-Specialty Surgical Group
1990 – 1994 Partner – Advanced Ear, Nose & Throat Care, P.C.
1986 – 1990 Employee Physician & Surgeon – Gary Townsend, MD, P.C.

HOSPITAL POSITIONS

2003 – Present Chairman Surgical Services Committee – Danbury Hospital
1992 – 1995 Medical Advisory Board Danbury Surgical Center
1991 – 1993 Secretary / Treasurer, Department of Surgery – Danbury Hospital

AFFILIATIONS

Danbury Hospital
Danbury Healthsouth Surgical Center
New Milford Hospital

TEACHING APPOINTMENTS

Attending Surgeon, Section Otolaryngology; Head & Neck Surgery; Danbury Hospital
Work with Surgical Resident who have specific interest in Head & Neck Surgery
Clinical Instructor – Otolaryngology Mount Sinai Service, Elmhurst Queens till 1997
Clinical Instructor – Otolaryngology University Medical Center, Yale New Haven,
New Haven, CT till 2002

AWARDS

1977 Cum Laude – Brandeis University
1981 Lester R. Tuchman Award for Clinical Excellence.
Mount Sinai School of Medicine

MEDICAL LICENSE

State of New York - #152750
State of Connecticut - #027179

MEDICAL CONSULTING EMPLOYMENT

2001 – 2002 BrainLAB Corporation
2003 – Present Stryker Leibinger Corporation
2004 – Present Editorial Board of “Outpatient Surgery Magazine”

PROFESSIONAL SOCIATES

Alpha Omega Alpha Medical Honor Society
American Academy of Otolaryngology – Head and Neck Surgery – Fellow
American Academy Ambulatory Surgery Centers
American Rhinologic Society
Connecticut State Medical Society
Danbury Medical Society
Fairfield County Medical Society
New York Metropolitan Facial Plastic Surgery Society – Charter Member

PUBLICATIONS

1. Klarsfeld, J., : Surgical Therapeutic Approach to the Management of Full Thickness Burns. Mt. Sinai J. Med. 48 (5): Sept – Oct., 1981
2. Klarsfeld, J., Edelstein, D. and Biller, H.F.: Benign and Malignant Schwannomas of the Brachial Plexus. (Accepted to the American Academy of Otolaryngology – Head and Neck Surgery), Fall Meeting, October 1985
3. Klarsfeld, J., Sacks, S.H., and Green, R.P.: Radical Neck Dissections Necessitated by a Retro Pharyngeal Abscess. New York State Journal of Medicine, Vol. 87, October 1987, 567 – 569
4. Klarsfeld, J.,: Is Image-Guided Surgery Right For Your Facility? Outpatient Surgery Magazine. July 2003

SPEAKING ENGAGEMENTS & INSTRUCTIONAL COURSES

1. Sinus Masters Course; Chicago, Illinois; Image-Guided Surgical Instructor; December 2001
2. Mount Sinai Medical Center, Department of Otolaryngology - Grand Rounds; New York, New York; Evaluating Image Guided Surgical Systems; Lecturer; November 2002
3. Annual Combined Meeting; Oklahoma & Arkansas State Otolaryngology Societies;

Branson, Missouri; Image-Guided Surgery Lecturer & Panel Participant; May 2002

4. Sinus Masters Course; Dallas, Texas; Image-Guided Surgical Instructor; June 2002
5. American Academy Ambulatory Surgical Centers – Annual Meeting; New Orleans, Louisiana; Image-Guided Surgery: Using Technology To Grow Your ASC; Lecturer; March 2003
6. Ambulatory Surgical Center and Specialty Surgical Hospital Development Conference; Getting Started: Clinical & Business Perspectives on Developing and Operating Ambulatory Surgical Centers and Surgical Hospitals; Las Vegas, Nevada; New Technology & Image Guidance Lecture; April 2003
7. American Academy Otolaryngology Head & Neck Surgery – Annual Meeting; Orlando, Florida; Instructional Course – Image Guided Surgical Systems: Evaluation & Business Plan Development; Instructor; September 2003
8. Buffalo Otolaryngology Society – Quarterly Meeting; Buffalo, New York; Indications and Business Plan Development For The Purchase of an Image Guided Surgical System; October 2003

Exhibit B
Sinus surgery set up devices

- **Scope & Irrigator**
 - light cord
 - camera & cord
 - suction tubing
 - irrigation tubing
- **Debrider**
 - power cord
 - suction tubing
- **Headlight**
 - light cord
- **Cautery**
 - power cord
- **Suction Tubing**
- **On The Floor**
 - cautery peddle
 - debrider control



IN THE UNITED STATES PATENT
AND TRADEMARK OFFICE

Applicant(s): Malakowski, et. al.)
Serial No.: 09/764,609)
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For: Surgery System)
Group Art Unit: 3739)
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Declaration of Dr. Amin Bardai Kassam, M.D. made under Rule 132

I, Dr. Amin Bardai Kassam declare as follows:

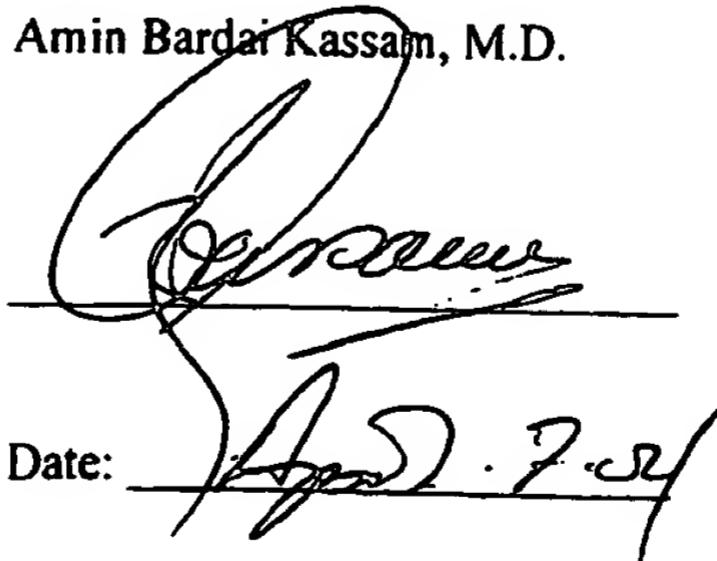
1. That I am a surgeon specializing in neurological surgery and my Curriculum Vitae outlining my education and specializations is attached as Exhibit A.
2. That I am currently a consulting surgeon for the Stryker Corporation, a related entity to the assignee of the present application.
3. That I am familiar with the use of surgical navigation systems and instruments in the neurosurgeries and I have used a number of different surgical navigation systems in the past including passive navigation tracking systems and a system that uses wireless hand pieces of the type as claimed in the present application.
4. That I understand that the present patent application is claiming the use of wireless communication between the surgical navigation system and the individual instruments in combination with other elements of the currently pending claims
5. That I understand that the current application has been rejected because the invention as claimed is considered obvious in view of a patent that discloses a wired or tethered instrument communicating with a surgical navigation system.
6. That I believe that the use of wireless communication between an active smart

instrument and a surgical navigation system has been recognized as a significant advance today and I believe it would not have been considered as obvious on January 27, 2000 for the reasons set forth below:

- a. The use of a wireless system simplifies the setup prior to a typical neurosurgery, such as a surgery to remove a brain tumor;
- b. In neurosurgery there are a large number of instruments and devices in the surgical field that require power cords, suction tubes and the like.
- c. The use of a wireless hand piece that can be tracked by the surgical navigation system is much less cumbersome and provides a significantly greater range of motion to me in performing these surgical techniques allowing me to perform these tasks properly, in less time, and with lower fatigue. A wired hand piece has a wire that drags, can catch on other instruments and wires, and will actually pull against the direction I need to move the hand piece.
- d. The use of a wireless hand piece minimizes issues relating to maintenance of the surgical field in a sterile state because there is no requirement to pass a portion of the cord to a technician to attach the hand piece to the surgical navigation computer.

7. I hereby declare that all statements made herein of my own knowledge are true and that all statements made on information and belief are believed to be true; and further that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under 18 U.S.C. §1001 and that such willful false statements may jeopardize the validity of the above referenced application or any patent issued thereon.

Amin Bardai Kassam, M.D.

A handwritten signature in black ink, appearing to read "Amin Bardai Kassam, M.D.", is written over a horizontal line. Below the signature, the word "Date:" is written, followed by another handwritten date.

CURRICULUM VITAE



BIOGRAPHICAL

Name: AUG 08 2005 Amin Bardai Kassam **Birth Date:** 2/21/67
Home Address: 135 Mill View Drive **Birth Place:** Uganda
Pittsburgh, PA 15238
Home Phone: (412) 967-9122 **Citizenship:** Canadian

Business Address: Dept of Neurological Surgery
B400 UPMC-Presbyterian
200 Lothrop Street
Pittsburgh, PA 15213

Work Phone: (412) 647-6358 **Email:** kassamab@upmc.edu
Work Fax: (412) 647-0989

EDUCATION AND TRAINING

UNDERGRADUATE:

1985-1987 University of Toronto Microbiology/Biochemistry
Toronto, Ontario, Canada

GRADUATE:

1987-1991 University of Toronto MD
Toronto, Ontario, Canada

1996-pending University of Ottawa Masters Clinical Epidemiology
Ottawa, Ontario, Canada

POST-GRADUATE:

1991-1992 Toronto Wellesley Hospital Surgical Internship
1991-1993 Toronto, Ontario, Canada

1992-1996 University of Ottawa Neurosurgical Residency
Ottawa, Ontario, Canada

1996-1997 Ottawa General Hospital Fellowship
Ottawa, Ontario, Canada

APPOINTMENTS AND POSITIONS

ACADEMIC

1997-1998	University of Pittsburgh School of Medicine Department of Neurological Surgery	Clinical Instructor
1998-2002	University of Pittsburgh Medical Center Horizon	Consulting Staff
1998-2003	University of Pittsburgh School of Medicine Department of Neurological Surgery	Assistant Professor
1998-Present	University of Pittsburgh Medical Center Presbyterian, Montefiore, Shadyside	Attending Staff
1999-Present	Children's Hospital of Pittsburgh Pittsburgh, PA	Attending Staff
2000-2003	University of Pittsburgh School of Medicine Department of Otolaryngology/Head and Neck Surgery	Assistant Professor
2003-Current	University of Pittsburgh School of Medicine Department of Neurological Surgery	Associate Professor
2003-Current	University of Pittsburgh School of Medicine Department of Otolaryngology/Head and Neck Surgery	Associate Professor

ADMINISTRATIVE

1998-Present	University of Pittsburgh Medical Center Stroke Committee	Executive Committee Member
1999-Present	University of Pittsburgh School of Medicine Center for Cranial Base Surgery (Neurosurgery)	Director (Section Chief)
1999-Present	University of Pittsburgh School of Medicine Center for Cranial Nerve Disorders	Director (Section Chief)
1999-Present	University of Pittsburgh School of Medicine Center for Cerebrovascular Surgery	Associate Director
2001-Present	UPMC Center for Assessment of Surgical Technology (CAST)	Director

2001-Present	UPMC Department of Neurological Surgery Steering Committee	Member
2001-Present	UPMC Center for Minimally Invasive Surgery	Director
2002-Present	UPMC Department of Neurological Surgery Patient Satisfaction Committee	Committee Member
2002-Present	UPMC Department of Neurological Surgery Technology Assessment Committee	Committee Member
2002-Present	UPMC Department of Neurological Surgery Tissue Review Committee	Committee Member
2002-Present	UPMC Department of Neurological Surgery Research Committee	Committee Member

SPECIALITY BOARDS

2001-Present	National Institutes of Health Data Safety & Monitoring Committee	Member
2001-Present	Hemifacial Spasm Association	Medical Advisory Board Member
2001-Present	Advanced Cranio-Maxillofacial Forum	Member, Board of Trustees

CORPORATE APPOINTMENTS

2001-Present	Surgical Technologies and Assessment Group (STAG)	CEO & President
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CERTIFICATION AND LICENSURE

SPECIALTY CERTIFICATION

Royal College of Physicians and Surgeons of Canada	1996
American Board of Neurological Surgery (written)	1996

MEDICAL/PROFESSIONAL LICENSURE

Commonwealth of Pennsylvania	MD-063726-L	10/24/98
College of Physicians and Surgeons of Ontario	64134	11/19/92
Licentiate of Medical Council of Canada	LMCC	7/01/92
Drug Enforcement Administration	BK5594040	10/17/97

MEMBERSHIPS IN PROFESSIONAL AND SCIENTIFIC SOCIETIES

Ontario Medical Association
 North American Skull Base Society
 American Association of Neurological Surgeons
 Congress of Neurological Surgeons
 Royal College of Physicians & Surgeons of Canada
 International College of Surgeons
 American Heart Association Stroke Council
 Pituitary Tumor Network Association
 Trigeminal Neuralgia Association

HONORS

Frederick Urghart Academic Scholarship	1985
Aga Khan Academic Scholarship	1985
Canadian Achievement Award	1985
Ontario Scholar	1985
Gold Medalist Princeton Model United Nations Competition	1988
American Association of Neurology Experimental Research Competition	1988
George Brown Memorial Award of Research, University of Toronto, Faculty of Medicine	1990
Track Scholarship in Surgery, University of Toronto, Faculty of Medicine	1991
Harkom Lecturer (Harkom Award at Washington, P.A.)	2000
National Registry of WHO's WHO	2000
Strathmore's WHO'S WHO	2000
UPMC Presbyterian Above & Beyond Program	2000
The American Society of Neuroradiology 39 th Annual Scientific Meeting	
Summa Cum Laude Citation	2001

ACADEMIC TEACHING ACTIVITIES

Ad hoc reviewer Journal of Neuroimaging	1999-present
Preceptor, postgraduate research practicum, Masters in Nursing Program	
Thesis: "Outcomes Assessment in Cranial Base Surgery"	
Amy Roach, R.N.	1999-2000
Eileen Roach, R.N.	1999-2000

Faculty Mentor, Research Fellowship	
Thesis: "Molecular Pathogenesis of Cerebral Aneurysms"	2000-2002
Melvin Field, M.D.	
Preceptor, postgraduate research practicum,	06/00-09/00
Masters in Nursing Program Stephanie Marks, R.N.	
"Molecular Genetics of Cerebral Aneurysms"	
Linda Ambrose, Research Practicum, 72 hrs	9/00-11/00
James Kelly, Research Practicum, 72 hrs	9/90-11/00
Amy Hermann, Research Practicum, 72 hrs	01/01-5/01
Jim Roupe, Research Practicum, 72hrs	01/01-5/01
Aaron Ostrowski, Research Practicum, 72 hrs	01/01-5/01
Andrew Hicks, Research Practicum, 72 hrs	01/01-5/01
James Ermand, Independent Study, 72 hrs	01/01-5/01
Giriraj Sharma, Research Practicum, 72 hours	01/01-5/01
Melissa McConnell, Research Practicum, 72 hrs	05/01-8/01
Frank Wilson, SRNS, Research Practicum, 72 hours	05/01-8/01
Kirk Foster, SNRA, Research Practicum, 72 hours	01/03-4/03
	01/03-4/03

PUBLICATIONS:

Refereed Articles:

* indicates resident co-author

CA indicates corresponding author

PUBLISHED

1. Kondziolka D, Patel A* Lunsford LD, **Kassam AB**, Flickinger JC. Stereotactic radiosurgery plus whole brain radiotherapy versus radiotherapy alone for patients with multiple brain metastases. *Int J Radiat Oncol Biol Phys* September 1999 45(2):427-34.
2. Peters DG, **Kassam AB**, Yonas H, Heidrich O'Hare E, Ferrell RE, Brufsky AM. Comprehensive transcript analysis in small quantities of mRNA by SAGE-Lite. *Nucleic Acids Res* December 1999 15;(27):e39.
3. Peters DG, **Kassam AB**, St. Jean PL, Yonas H, Ferrell RE. Functional Polymorphism in the matrix metalloproteinase-9 Promoter as a potential risk factor for intracranial aneurysm. *Stroke* December 1999 (12):2612-6.
4. Lee SH*, Levy EI*, Scarrow AM*, **Kassam AB**, Jannetta PJ. Recurrent Trigeminal neuralgia attributable to veins after microvascular decompression. *Neurosurgery* February 2000 46(2):356-61.
5. Flickinger JC, Kondziolka D, Lunsford, LD, **Kassam AB**, Phuong LK, Liscak R, Pollack B. Development of a model to predict permanent symptomatic postradiosurgery injury for

arteriovenous malformation patients. *Int J Radiat Oncol Biol Phys* March 2000 15;46(5):1143-8.

6. Nemoto EM, Yonas H, **Kassam AB**. Clinical Experience with Cerebral Oximetry in Stroke and Cardiac Arrest. *Crit Care Med* April 2000 28(4):1052-154.
7. Hegazy HM*, Carrau RL, Snyderman CH, **Kassam AB**, Zweig J*. Transnasal-Endoscopic Repair of Cerebrospinal Fluid Rhinorrhea: A meta-analysis. *Laryngoscope* July 2000 110:1166-1172.
8. Wechsler LR, Jungreis CA, Masaro LM, Yonas H, Barch CA, **Kassam AB**, Aston C, Johnson DW. Long term follow-up of patients treated with intrarterial urokinase for acute stroke. *J Stroke Cereb Dis* September/October 2000 9(5):213-217.
9. Zweig JL*, Carrau RL, Celin SE, Schaitkin BM, Pollice PA, Snyderman CH, **Kassam AB**, Hegazy H*. Endoscopic Repair of CSF Leaks to the Sinonasal Tract: Predictors of Success. *Otolaryngol Head Neck Surg* September 2000 123:195-201.
10. Witham TF*, Kondziolka D, **Kassam, AB**. Case problems in neurological surgery. *Neurosurgery* December 2000 47 (6), 1420-1429.
11. Pollack I, Hamilton R, Fitz C, **Kassam AB**, Snyderman CH. Congenital Reactive Myofibroblastic Tumor of the Petrous Bone: Case Report. *Neurosurgery* February 2001 48(2), 430-5.
12. Carrau RL, Snyderman CH, **Kassam AB**, Jungreis CA. Endoscopic and endoscopic-assisted surgery for juvenile angioma. *Laryngoscope* March 2001 111(3):483-487.
13. Peters, DG, **Kassam AB**, Feingold E, Heidrich-O'Hare E, Yonas H, Ferrell RE, Brufsky A. Molecular anatomy of an intracranial Aneurysm coordinated expression of genes involved in wound healing and tissue remodeling. *Stroke* April 2001 32(4):1036-42.
14. Hegazy HM*, Snyderman CH, Fan CY, **Kassam AB**. Neurilemmomas of the paranasal sinuses. *Am J Otolaryngol* 22(3);215-218, May-June 2001.
15. Levy EI*, Koebbe CJ, Horowitz MB, Jungreis C, Pride GL, Dutton K, **Kassam AB**, Purdy PD. Rupture of intracranial aneurysms during Endovascular coiling: Management and Outcomes. *Neurosurgery* October 2001 49(4):807-813.
16. Horowitz MB, **Kassam AB**^{CA}, Nemoto E, Arimoto J, Jungries C. An Endovascular primate model for the Production of a middle cerebral artery ischemic infarction. *Interventional Neuroradiology* 2001 7:223-228.
17. Levy EI*, Koebbe CJ* Horowitz MH, Jungreis C, Pride GL, Dutton K, **Kassam AB**, Purdy PD. Rupture of intracranial aneurysms during endovascular coiling: Management and outcomes. *Neurosurgery* October 2001, 49 (4): 807-813.

18. Horowitz MB, Spiro R, Purdy P, Jungreis C, Levy EI*, **Kassam AB**. Meningioma embolization. *Contemp Surg* October 15, 2001 23 (20):1-7.
19. Kilpatrick MM*, Yonas H, Goldstein S, **Kassam AB**, Gebel, J, Wechsler L, Jungreis C, Fukui M. CT Based Assessment of Acute Stroke: CT, CT Angiography and Xenon CT Cerebral Blood Flow. *Stroke* November 2001 32(11):2543-9.
20. Koebbe CJ*, Horowitz MB, Levy EI*, Adelson D, **Kassam AB**, Jungreis C. Endovascular particulate and alcohol embolization for near fatal epistaxis from a skull base vascular malformation. *Pediatr Neurosurg* November 2001(35):257-261.
21. Carrau RL, **Kassam AB**, Snyderman CH. Pituitary Surgery. *Otolaryngol Clin North Am* December 2001 34(6):1143-55.
22. Horowitz MB, **Kassam AB**, Levy EI*, Lunsford LD. Misinterpretation of parahippocampal herniation for a posterior fossa tumor: Imaging and intraoperative findings. *J Neuroimaging* January 2002 12(1):78-79.
23. Tyler-Kabara EC*, **Kassam AB**^{CA}, Horowitz MB, Urgo L, Hadjipanayis C*, Bissonette D, Levy EI*, Chang YF. Predictors of outcome in surgically managed patients with typical and atypical trigeminal neuralgia: comparison of results following microvascular decompression. *J Neurosurg* March 2002 96:527-531.
24. **Kassam A**^{CA}, Carrau R, Horowitz M, Snyderman C, Hirsch BE, Welch WC. The Role of Fibrin Sealants in Cranial-Base Surgery. *Medscape Neurology & Neurosurgery* February 2002. Available at: <http://www.medscape.com/viewprogram/1280>.
25. Horowitz, MB, Levy EI*, **Kassam AB**, Purdy PD. Endovascular therapy for intracranial aneurysms: A historical and present status review. *Surg Neurol* March 2002 57:147-159.
26. Patel A*, **Kassam AB**^{CA}, Horowitz MB, Chang YF. Microvascular decompression in the management of glossopharyngeal neuralgia: An analysis of 217 cases. *Neurosurgery* April 2002 50(4), 705-711.
27. Horowitz M, Whisnant R*, Jungreis C, Snyderman C, Levy EI*, **Kassam A**. Temporary balloon occlusion and ethanol injection for preoperative embolization of carotid-body tumor. *Ear Nose Throat J* August 2002 81(8):536-547.
28. Zweig J*, Carrau RL, Celin SE, Snyderman CH, **Kassam A**, Hegazy H. Endoscopic Repair of Acquired Encephaloceles, Meningoceles, and Meningo-Encephaloceles: Predictors of Success. *Skull Base* 2002 12 (3):133-139.
29. Horowitz M, Jovin T, Welch W, **Kassam AB**. Bow hunter's syndrome in the setting of contralateral vertebral artery stenosis: Evaluation and treatment. *Spine* 2002 27(23): E495-E498.

30. Smith JC*, Snyderman CH, **Kassam AB**. Resection of a Giant Parapharyngeal Space Lipoma: A Case Report and Surgical Approach to a Unique Tumor. *Skull Base Surgery* November 2002 12 (4): 215-220.
31. **Kassam AB**^{CA}, Horowitz M, Carrau R, Snyderman C, Welch W, Hirsch B, Chang YF. The Use of Tisseel Fibrin Sealant in Neurosurgical Procedures: Incidence of Cerebrospinal Fluid Leak and Cost Benefit Analysis. *Neurosurgery*, May 2003 52(5) 1102-1105.
32. *Park HK, Horowitz MB, Jungreis C, **Kassam AB**, *Koebbe C, Genevro J, Dutton K, Purdy P. Endovascular treatment of paraclinoid aneurysms: Experience with 73 cases. *Neurosurgery* July 2003 53 (1) 14-24.
33. *Koebbe C, *Levy EI, Horowitz MH, Jungreis C, **Kassam AB**, Purdy PD, Pride GL, Dutton K. Endovascular coiling of anterior communicating artery aneurysms: A review of clinical and angiographic outcomes. *Contemporary Neurosurgery* July 15, 2003 25(14)1-6, July 2003.
34. Horowitz MB, Crammond D, Balzer J, Jungreis C, **Kassam AB**. Aneurysm rupture during Endovascular coiling: effects on cerebral transit time and neurophysiologic monitoring and the benefits of early ventriculostomy. *Minimally Invasive Neurosurgery* October 2003 46(5):300-305.
35. Kapoor V, Rothfus WE, Grahovac SZ, **Kassam AB**, Horowitz MB. Refractory Occipital Neuralgia: Preoperative Assessment with CT-Guided Nerve Block Prior to Dorsal Cervical Rhizotomy. *AJNR AM J Neuroradiol*. 2003 November-December; 24 (10): 2105-10.
36. Horowitz MB, Crammond D, Balzer J, Jungreis C, **Kassam AB**. Aneurysm Rupture During Endovascular Coiling: Effects on Cerebral Transit Time and Neurophysiologic Monitoring and the Benefits of Early Ventriculostomy. *Minimally Invasive Neurosurgery* October 2003 46(5):300-305.
37. **Kassam AB**^{CA} Chang YF, Ferrell RE, Peters DG. A Functional Polymorphism in the Endothelial Nitric Oxide Synthase Gene is a Risk Factor for Subarachnoid Hemorrhage in Normotensive Patients with Intracranial Aneurysms. *Neurosurgery* (In Revision).
38. Lunsford L, **Kassam AB**^{CA}, Chang YF. A Survey of US Neurological Residency Program Directors. *Neurosurgery*. February 2004; 54(2): 239-247
39. Harris AE, Beckner ME, Barnes L, **Kassam AB**, Horowitz M. Giant Cell Tumor of the Skull: A Case Report and Review of the Literature. *Surg Neurol* 2004;61: 274-277.
40. Balzer JR, Horowitz MB, Krieger D, Crammond D, Jungreis C, **Kassam AB**, Sclabassi RJ. Neurophysiological monitoring during Guglielmi detachable coiling for cerebral aneurysms. *AJNR*. (In Press).

41. **Kassam AB^{CA}**, Horowitz M, Chang YF, Peters DG. Altered Arterial Homeostasis and Cerebral Aneurysms (Part I): A review of the literature and justification for a molecular biomarker search. *Neurosurgery* May 2004 (In Press).
42. **Kassam AB^{CA}**, Horowitz M, Chang YF, Peters DG. Altered Arterial Homeostasis and Cerebral Aneurysms (Part II): A preliminary molecular epidemiology study. *Neurosurgery* June 2004 (In Press).
43. **Kassam AB^{CA}**, Patel A, Welch W, Balzer J, Snyderman C, Hirsch B, Carrau R. The Carotid-Vertebral Space: an “extended” lateral window to the ventromedial cranial base and lower craniocervical junction. *ENT* (in Press).
44. **Kassam A^{CA}** Nemoto EM, Balzer J, Rao GR, Welch WC, Boada F, Kuwabara H, Horowitz M. Assessment of the toxicology of Tisseel fibrin glue on the central nervous system of the non-human primate. *ENT* (in Press).

Other Publications (Comments / Letters to the Editor):

1. Jannetta PJ, **Kassam AB**. Comment on Hemifacial Spasm. *J Neurol Neurosurg Psychi*, 66(2):255-6, February 1999.
2. Tyler-Kabara EC*, **Kassam, AB^{CA}**, Horowitz MB, Urgo L, Hadjipanayis C*, Bissonette D, Levy EI*, Chang YF. Predictors of outcome in surgically managed patients with typical and atypical trigeminal neuralgia: comparison of results following microvascular decompression. *J Neurosurg* March 2003 98(3)-647-648.
3. Welch W, **Kassam AB**. Endoscopically assisted transoral-transpharyngeal approach to the cranivertebral junction. *Neurosurgery* June 2003 32(6) 9.

Submitted Journal Articles:

1. **Kassam AB^{CA}**, Horowitz M, Lee J*, Balzer J. Microvascular Decompression for Hemifacial Spasm: Technical nuances learned from an experience of 300 cases. *Neurosurgery* (Submitted August 2003)..
2. **Kassam AB^{CA}**, Horowitz M, Welch W, Sclabassi R, Carrau R, Snyderman C, Hirsch B. The Role of Endoscopic Assisted Microneurosurgery (Image Fusion Technology) in the Performance of Neurosurgical Procedures. *Minimally Invasive Neurosurgery* (Submitted August 2003).
3. Levy E, Horowitz M, Jovin T, Kassam A. Successful management of post tumor resection middle cerebral artery thrombosis with angioplasty/stenting and low dose intrarterial/intravenous IIb/IIIa inhibitor infusion: Case report. *Neurosurgery* (submitted 9/03)

4. **Kassam AB** ^{CA}, Horowitz M, Scarro A, Chang YF, Balzer J, Soso M, Pless M, Sclabassi R, Crammond D, Krieger D, Patel A, Levy E, Genevro J, Burkhart L. Outcomes Following Microvascular Decompression for Hemifacial Spasm in 121 Patients. *Neurosurgery* (In Revision, September 2003).
5. Engh J, **Kassam A**, Burkhart L, Horowitz M. Re-operation for Hemifacial Spasm: An Analysis of 37 Patients. *Neurosurgery* (In Revision, September 2003).
6. *Harris AE, Hadjipanayis CG, Lunsford LD, Lunsford AK, **Kassam AB** ^{CA}. Endoscopic removal of intraventricular lesions assisted by stereotactic CT guidance. *Neurosurgery* (submitted October 2003).
7. Snyderman CH, Zimmer LA, **Kassam AB**. Sources of Registration Error with Image Guidance Systems during Endoscopic Anterior Cranial Base Surgery. *Otolaryngology-Head and Neck Surgery*. Submitted for publication, February 2004.
8. Park HK, Horowitz MB, Jungreis C, Genevro J, Koebbe C, Levy E, **Kassam AB**. Periprocedural Morbidity and Morality Associated with Endovascular Treatment of Intracranial Aneurysms. *AJNR*. Submitted for publication February 2004.

BOOK CHAPTERS:

1. Carrau RL, **Kassam AB**, Arriaga M. Surgical Approaches to the Infratemporal Fossa. Subfrontal approach. E-Medicine, 2000., St. Petersburg, FL. <http://www.emedicine.com/cgi-shl/foxweb.exe/instr@d:lem\ga>.
2. Carrau RL, **Kassam AB**, Snyderman CH. Surgical Approaches to the Infratemporal Fossa. Anterior Subcranial approach: Tumor removal. E-Medicine, 2000., St. Petersburg, FL. <http://www.emedicine.com/cgi-shl/foxweb.exe/instr@d:lem\ga>.
3. **Kassam AB**, Peters D, Horowitz M. Molecular Pathogenesis of Cerebral Aneurysms: Current Concepts and Future Directions. In: Pinsky MR (ed.), Springer. Update in Intensive Care and Emergency Medicine, Vol. 37, Chapter 4, pp 26-41 (2002).
4. **Kassam AB**, Horowitz M. Posterior Fossa Surgery for Cranial Nerve Disorders, in Neurosurgical Pain Management, Editor: Follet, Publisher: Saunders, Orlando, Florida. (In press).
5. Carrau RL, **Kassam AB**. Reconstruction and closure in Essentials in Otology and Neurotology. Editors: De La Cruz, A. and Arriaga, M. Thieme, New York, NY. (In press, 2000).
6. Horowitz M, Levy E, **Kassam AB**, Purdy P. Endovascular Therapy For Intracranial Aneurysms: A Historical And Present Perspective. Progress in Neurological Surgery: Neuroendovascular Surgery. S. Karger AG, Switzerland. (In Press)

7. Horowitz M, Levy E, Genevro J, **Kassam AB**, Burguera B. Petrosal Sinus Sampling For Cushing's Disease. Progress in Neurological Surgery: Neuroendovascular Surgery. S. Karger AG, Switzerland. (In Press)

NON-REFERRED ARTICLES

1. **Kassam AB**. Microvascular Decompression for Hemifacial Spasm, Benign Essential Blepharospasm Research Foundation Newsletter Vol.19, No.6, (p.6-7), November/December 2000.
2. **Kassam AB**. Surgery for Cranial Nerve Disorders, Compass Medical Education Network, Review Course in Neurological Surgery, January 2000.
3. Krishnamurti U, **Kassam A**, Welch W, Wiley C. Case 342: Upper Extremity Numbness and weakness. March 2003, available at: <http://path.upmc.edu/cases/case342.html>.

Peer Reviewed Abstracts:

1. **Kassam AB**, Ventureyra ECG, Higgins MJ, Keene D, Hsu E, Humphreys P. Childhood Cerebral Hemispheric Gliomas. Canadian Congress of Neurological Sciences, 29th Meeting, St. John's Newfoundland, June 27-30, 1994, Volume 21 (Supplement 2), A-10.
2. **Kassam AB**, Agbi, CB, Jarmuske MB, Lamothe A, Gilberg SM, Morris SF. Anterior Fossa and Orbito-Frontal Resection and Reconstruction Techniques: Using Vascularized Rib Grafts. Canadian Congress of Neurological Sciences, 32nd Meeting, Saskatoon, Saskatchewan, June 24-28, 1997, Volume 24 (Supplement 1), E-07.
3. **Kassam AB**, Agbi, CB. Posterior Cervical Stabilization Using the Ti-Frame: A Preliminary Report and Technical Note. Canadian Congress of Neurological Sciences, June 24-28, 1997, Volume 24 (Supplement 1), L-02
4. Agbi CB, **Kassam AB**, Pratt LA. Is There a Role for Aggressive Internal Decompression in Patients with Malignant Intracranial Pressure Following Severe Cranio-cerebral Injury. Canadian Congress of Neurological Sciences, June 24-28, 1997, Volume 24 (Supplement 1), P-048.
5. **Kassam AB**, Yonas H, Pentheny S, Kirby L. Role of Xenon Computed Tomography in Low Density Surrounding Spontaneous Intracerebral Hemorrhages: A physiological guide for rational medical and surgical management. Congress of Neurological Surgeons 1998;43:701.
6. **Kassam AB**, Yonas H. Pentheny S, Kirby L, Jungreis C, Fukui M, Kaufmann A. Computed Tomography in Spontaneous Intracerebral Hemorrhages: Physiological guide for rational

medical and surgical management. Congress of Neurological Surgeons 1998; 43:714.

7. Nemoto EM, Yonas H, **Kassam AB**. Cerebral Oximetry: Cerebral oxygen supply and demand. Journal of Neurosurgical Anesthesiology, 1998; 10:266
8. Nemoto EM, Yonas H, **Kassam AB**, Cho H, Balzer J, Baumann S, Sclabassi RJ. Cerebral oximetry and evoked potential monitoring for carotid endarterectomy. Journal of Neurosurgical Anesthesiology, 1998; 10:266.
9. Snyderman CH, **Kassam AB**. Neurilemmomas of Paranasal Sinuses. Skull Base Surgery, 1999; 9: Supplement 1; p. 29.
10. Goldstein S, Yonas H, Gebel J, **Kassam AB**, Jungreis CA, Uzun G, Firlik AD, Rubin G, Wechsler LR. Acute cerebral blood flow as a predictive physiologic marker for symptomatic hemorrhagic conversion and clinical herniation after thrombolytic therapy. American Stroke Association, Volume 31, Number 1, Page 3, January 2000. ISSN 0039-2499.
11. Goldstein S, Yonas H, Gebel J, **Kassam AB**, Jungreis CA, Uzen G, Barch CA, Massaro L, Firlik AD, Rubin G, Wechsler L. Cerebral blood flow as a predictor of clinical outcome after thrombolytic therapy for acute ischemic stroke. American Stroke Association, Volume 31, Number 1, page 150, January 2000, ISSN 0039-2499.
12. **Kassam AB**, Carrau RL, Snyderman CH, Patel A, Herrera, A. Endoscopic Anatomy of the Posterior Fossa: Detailed Dissections, Skull Base Surgery, ISSN 1052-1453, Volume 10, Supplement 1, Page 14, March 2000.
13. Patel A, **Kassam AB**, Carrau, RL, Snyderman CH, Fukui M, Welch W, Yonas H. Portable Intraoperative CT in Skull Base Surgery. Skull Base Surgery, ISSN 1052-1453, Volume 10, Supplement 1, Page 25, March 2000.
14. Patel A, **Kassam AB**, Carrau RL, Snyderman CH. MRI-Guided Localization in Endoscopic Endonasal Pituitary Surgery: A New Application for Image Guidance. Skull Base Surgery, ISSN 1052-1453, Volume 10, Supplement 1, Page 25, March 2000.
15. Scarrow A, **Kassam AB**, Patel A, Levy EI* Horowitz MB, Yona, H, Jannetta PJ. Effects of Botulinin Toxin on Clinical Outcome of Microvascular Decompression for Hemifacial Spasm. Skull Base Surgery, ISSN 1052-1453, Volume 10, Supplement 1, Page 28, March 2000.
16. Scarrow AM, **Kassam AB**, Balzer JR, Patel A, Witham T, Horowitz MB, Jannetta, PJ. Effect of Botulinin Toxin on Intraoperative Lateral Spread During Microvascular Decompression for Hemifacial Spasm. Skull Base Surgery, ISSN 1052-1453, Volume 10, Supplement 1, Page 28, March 2000.
17. Welch WC, **Kassam AB**, Carrau RL, Snyderman CH. Endoscopic-Assisted, Image Guided Craniocervical Decompression. Skull Base Surgery, ISSN 1052-1453, Volume 10,

Supplement 1, Page 34, March 2000.

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2. Peters DP, **Kassam AB**, Yonas H. Genetics of Intracranial Aneurysms I: An Association Study of Demographic Factors and Examination of Structural Matrix Proteins. 1999 Joint Meeting of the AANS/ CNS Section on Cerebrovascular Surgery and American Society of Interventional and Therapeutic Neuroradiology, Nashville, Tennessee, January 31, 1999.

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8. Snyderman CH, **Kassam AB**. Neurilemmomas of the paranasal sinuses. North American Skull Base Society, Chicago, Illinois, May 28-31, 1999.
9. Nemoto E, Kerr M, Yonas H, **Kassam AB**. Cerebral Oxymetry by near-infrared spectroscopy (NIRS) as an early indicator of delayed cerebral ischemia (DCI) following subarachnoid (SAH). Presented to Annual Scientific Symposium of the Society of Critical Care Medicine, Orlando, FL, February 11-15, 2000.
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33. Lunsford LD, **Kassam AB**, Chang YF. A Survey of U.S. Neurosurgical Residency Program Directors. 53rd Annual Meeting of the Congress of Neurological Surgeons, Denver, Colorado, February 20-21, 2003.
34. Zimmer LA, Snyderman CH, **Kassam AB**. Endoscopic-Assisted Resection of a Skull Base Arteriovenous Malformation. 15th Annual Meeting of the North American Skull Base Society, New Orleans, Louisiana, February 11-17, 2004.
35. Branch M, Levy E, Snyderman CH, **Kassam AB**. Transnasal Endoscopic Resection of Synchronous Pituitary Adenoma and Suprasellar Meningioma. 15th Annual Meeting of the North American Skull Base Society, New Orleans, Louisiana, February 11-17, 2004.
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Synchronous Pituitary Adenoma and Suprasellar Meningioma: Technical Note and Review of the Literature. 15th Annual Meeting of the North American Skull Base Society, New Orleans, Louisiana, February 11-17, 2004.

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PROCEEDINGS OF CONFERENCE AND SYMPOSIA:

1. Yonas H, Jungreis C, Fukui M, Wechsler L, Goldstein S, Gebel J, **Kassam AB**. Emergent stroke evaluation: CT/CT angiography/Xenon CT. Proceedings of the American Society of Neuroradiology, 1999.
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PANEL PRESENTATIONS:

Moderator:

1. **Kassam AB**. Posterior Fossa Surgery, American College of Surgeons Combined Neurosurgery/Otolaryngology Program, Pittsburgh, PA, March 29, 2000.
2. **Kassam AB**. Endoscopic Skull Base Surgery, North American Skull Base Society Meeting, Phoenix, Arizona, March 18, 2000.
3. **Kassam AB**, Edwards MS, Hayden RE, O'Malley B, Shahi K. Session Chair Panelist, New Technology in Neurologic Surgical Practice, Conference on Interdisciplinary Problem Solving in Cranio-Maxillofacial Surgery sponsored by HealthStream, Sonoma, California, October 4, 2003.
4. **Kassam AB**, Samant S. *Endoscopy Scientific Session*, North American Skull Base Society Meeting. New Orleans, Louisiana, Monday, February 16, 2004.
5. **Kassam AB**, Shah M. *Meningiomas/Parasellar Tumors Scientific Session*, North American Skull Base Meeting. New Orleans, Louisiana, Monday, February 16, 2004.

Discussant:

1. **Kassam AB.** Neurofibromatosis: 1998 Update: Management of Bilateral Acoustic Neuromas. Neurofibromatosis Symposium, Pittsburgh, Pennsylvania, October 17, 1998.
2. **Kassam AB.** Operative Management of Pituitary Neoplasms. Mini-Seminar on Endocrine Disorders of the Head and Neck. University of Pittsburgh, Pennsylvania, February 11, 1999.
3. **Kassam AB.** Approaches to Data Base. Xenon: CTCBF Course: When, Why and How? University of Pittsburgh Medical Center, Pittsburgh, PA February 26-28, 1999.
4. **Kassam AB.** Glomus Jugular Tumors: Outcome Measures and Long-Term Results. North American Skull Base Society, Chicago Illinois, May 28-31, 1999.
5. **Kassam AB.** Jugular Foramen Tumors, American College of Surgeons Combined Neurosurgery/Otolaryngology Program, Pittsburgh, PA, March 29, 2000.
6. **Kassam AB.** Facial Nerve Injuries, American College of Surgeons Combined Neurosurgery/Otolaryngology Program, Pittsburgh, PA, March 29, 2000.
7. **Kassam AB.** Evaluation of Swallowing Function in Neurosurgical Patients, Opening Ceremony for University of Pittsburgh Medical Center Swallowing Center, Pittsburgh, PA, May 11, 2000.
8. **Kassam AB.** Case Management: Intracranial Meningomas (Luncheon Seminar), Congress of Neurological Surgeons 50th Annual Meeting, San Antonio, Texas, September 26, 2000.
9. **Kassam AB.** Trigeminal Neuralgia: Treatment Options (Luncheon Seminar), Congress of Neurological Surgeons 50th Annual Meeting, San Antonio, Texas, September 27, 2000.
10. **Kassam AB.** Nuclear hyperexcitability in the brainstem. Hemifacial Spasm Association Annual Meeting, Pittsburgh, Pennsylvania, July 19, 2003.
11. **Kassam AB.** Expanded Endonasal Approach to the Ventral Skull Base. Congress of Neurological Surgeons. Skull Base Panel: How I Do It. Denver, Colorado. June 2003.

PEER REVIEWED PRESENTATIONS:

International:

1. **Kassam AB, Perrin RG.** Omaya Reservoirs. Canadian Neuro-oncology Meeting, Deerhurst, Ontario, Canada. 1992.

2. **Kassam AB**, Ventureyra ECG, Higgins MJ, Keene D, Hsu E, Humphreys P. Childhood Hemispheric Gliomas, Canadian Congress of Neurological Surgeons, St. Johns, Newfoundland, Canada. 1994.
3. **Kassam AB**. Cushing's Disease: A Consensus Statement. Canadian Congress of Neurological Surgeons, Victoria, British Columbia, Canada. June, 1995.
4. **Kassam AB**, Agbi CB. Posterior Cervical Stabilization Using the Ti-Frame: A Preliminary Report and Technical Note 32nd Meeting of the Canadian Congress of Neurological Sciences, Saskatoon, Saskatchewan, Canada, June, 1997.
5. **Kassam AB**, Agbi CB, Jamuske MB, LaMothe A, Gilberg SM. Anterior Fossa and Orbito-Frontal Resection and Reconstruction Techniques: Using Vascularized Rib Grafts, 32nd meeting of Canadian Congress of Neurological Sciences, Saskatoon, Saskatchewan, Canada, June, 1997.
6. **Kassam AB**. Serial Analysis of Gene Expression for Cerebral Aneurysms. 75 Years of Neurosurgery in Canada, Toronto, Ontario, Canada, October 29, 1998.
7. **Kassam AB**. Endoscopic Approach to the Ventral Skull Base. Asian Australasian Congress, Singapore, November 24, 2003.

National:

1. Fukui MB, Williams RL, **Kassam AB**, Pham B, Firlik AD, Yonas H. Reliability of CT versus xenon cerebral blood flow studies in early stroke. American Society of Neuroradiology, Philadelphia, PA, 1998.
2. **Kassam AB**, Yonas H, Pentheny S, Kirby L, Jungreis C, Fukui M, Kaufman A. Xenon Computed Tomography in Spontaneous Intracerebral Hemorrhages: A Physiological Guide for Rational Medical and Surgical Management. Congress of Neurological Surgeons Annual Meeting, Seattle, Washington, October 3-9, 1998.
3. Nemoto EW, **Kassam AB**. Cerebral Oximetry: Cerebral Oxygen Supply and Demand. Society of Neurosurgical Anesthesia and Critical Care. Orlando, Florida, October 16, 1998.
4. Karakus A, Yonas H, **Kassam AB**, Kromer HA, Wechsler LR. Correlation of Vasoreactivity Measurements: Flow Velocity versus Cerebral Blood Flow in patients with Subarachnoid Hemorrhage. Presented at the 1999 Joint Meeting of the AANS/CNS Section on Cerebrovascular Surgery & American Society of Interventional and Therapeutic Neuroradiology, Nashville, Tennessee, January 31-February 3, 1999.
5. Carrau RL, Snyderman CH, **Kassam AB**. Endoscopic Assisted Skull Base Surgery, North American Skull Base Society, Chicago Illinois, May 28-31, 1999.

6. **Kassam AB, Carrau R, Snyderman CH, Patel A, Herrera A.** Endoscopic Anatomy of the Posterior Fossa: Detailed Dissections. American Skull Base Society Meeting, Phoenix, Arizona, March 17-20, 2000.
7. **Kassam AB, Jarmuske M, Gilberg S, LeMoth A, Agbi C.** A Viable Vascularized Rib Flap: An Option for Skull Base Reconstruction. American Skull Base Society Meeting, Phoenix, Arizona, March 17-20, 2000.
8. **Patel A, Kassam AB, Carrau R, Snyderman CH, Fukui M, Welch W, Yonas H.** Portable Intraoperative CT in Skull Base Surgery. American Skull Base Society Meeting, Phoenix, Arizona, March 17-20, 2000.
9. **Patel A, Kassam, AB, Carrau R, Snyderman CH.** MRI-Guided Localization in Endoscopic Endonasal Pituitary Surgery: A New Application for Image Guidance. American Skull Base Society Meeting, Phoenix, Arizona, March 17-20, 2000.
10. **Scarrow AM, Kassam AB, Patel A, Levy EI, Horowitz M, Yonas H, Jannetta PJ.** Effects of Botulinin Toxin on Clinical Outcome of Microvascular Decompression for Hemifacial Spasm. American Skull Base Society Meeting, Phoenix, Arizona, March 17-20, 2000.
11. **Scarrow AM, Kassam AB, Balzer JR, Patel A, Witham T, Horowitz M, Jannetta PJ.** Effect of Botulinin Toxin on Intraoperative Lateral Spread during Microvascular Decompression for Hemifacial Spasm. American Skull Base Society Meeting, Phoenix, Arizona, March 17-20, 2000.
12. **Welch WC, Kassam AB, Carrau R, Snyderman CH.** Endoscopic-Assisted, Image Guided Craniocervical Decompression. American Skull Base Society Meeting, Phoenix, Arizona, March 17-20, 2000.
13. **Welch WC, Kassam AB, Thompson TP, Carrau R, Snyderman CH.** Image Guided Craniocervical Decompression with Staged Fusion: Patient Outcome and Complication Analysis. American Skull Base Society Meeting, Phoenix, Arizona, March 17-20, 2000.
14. **Hegazy H, Snyderman CH, Kassam A.** Meta-Analysis of Endoscopic Pituitary Surgery, North American Skull Base Society Meeting, Phoenix, Arizona, March 17-20, 2000.
15. **Carrau RL, Hegazy HM, Kassam AB, Snyderman CH, Zweig JL*.** Endoscopic Repair of CSF Leaks: A Meta-Analysis. North American Skull Base Society Meeting, Phoenix, Arizona, March 17-20, 2000.
16. **Kassam AB, Patel A, Horowitz M, Yonas H, Jannetta PJ.** Glossopharyngeal Neuralgia: a ten year experience in 200 patients. CNS Annual Meeting, San Antonio, Texas, September 27, 2000.
17. **Tyler-Kabara E, Kassam AB, Horowitz MB, Urgo L, Hadjipanayis C, Yonas H, Jannetta PJ.** Management of Trigeminal Neuralgia: predictors of outcome for microvascular

decompression. CNS Annual Meeting, San Antonio, Texas, September 27, 2000.

18. Tyler-Kabara E, **Kassam AB**, Horowitz MB, Urge L, Hadjipanayis C, Yonas H, Jannetta P. Management of Atypical Trigeminal Neuralgia: Predictors of Outcome for Microvascular Surgery. CNS Annual Meeting, San Antonio, Texas, September 27, 2000.
19. Welch WC, **Kassam AB**, Gersztern PC, Jacobs GB. Endoscopically-assisted, Image-Guided Craniocervical Decompression. Cervical Spine Research Society Meeting, Monterey, California, November 29, 2001.
20. **Kassam AB**, Horowitz MB, Scarro A, Chang YF, Balzer J, Soso M, Pless M, Sclabassi R, Krieger D, Genevro J, Burkhardt L. Outcomes following microvascular decompression for hemifacial spasm in 121 patients. North American Neuro-Ophthalmology Society 2003 Annual Meeting in Snowbird, Utah, February 8-13, 2003.
21. Nemoto EM, Jungreis C, Larnard C, Kuwabara H, Horowitz MB, **Kassam AB**. Hyperthermia and hypermetabolism in focal cerebral ischemia. Annual Meeting of the International Society of Oxygen Transport to Tissue, Rochester, New York, August 16-20, 2003.
22. **Kassam AB**, Snyderman CH, Carrau R. Expanded Endonasal Approach: Transplanum Approach. *Skull Base: An Interdisciplinary Approach*, Vol. 14, Supplement 1, February 2004.
23. **Kassam AB**, Snyderman CH, Carrau R. Expanded Endonasal Approach: Transcribiform Approach. *Skull Base: An Interdisciplinary Approach*, Vol. 14, Supplement 1, February 2004
24. **Kassam AB**, Snyderman CH, Grahovac S, Carrau R, Pless M, Buergara B, Chang YF. Endoscopic Resection of 64 Pituitary Tumors: Neuroendocrine and Visual Outcomes. *Skull Base: An Interdisciplinary Approach*, Vol. 14, Supplement 1, February 2004.
25. **Kassam AB**, Gardner P, Snyderman C, Carrau R. Fully Endoscopic Endonasal Resection of Parasellar Craniopharyngiomas: An Early Experience and Review of the Literature. *Skull Base: An Interdisciplinary Approach*, Vol. 14, Supplement 1, February 2004.
26. **Kassam AB**, Snyderman C, carrau R. Expanded Endonasal Approach: An Evolving Paradigm to the Ventral Skull Base. *Skull Base: An Interdisciplinary Approach*, Vol. 14, Supplement 1, February 2004.
27. Duvvuri U, Snyderman CH, **Kassam AB**. Trans-Sphenoidal Approach to Petrous Apex Lesions: A Case Series. *Skull Base: An Interdisciplinary Approach*, Vol. 14, Supplement 1, February 2004.
28. Engh J, **Kassam AB**, Burkhardt L, Chang YF, Horowitz MB. Early and Late Reoperation for Hemifacial Spasm: An Analysis of 41 Microvascular Decompressions. *Skull Base: An Interdisciplinary Approach*, Vol. 14, Supplement 1, February 2004.
29. **Kassam AB**, Horowitz MB, Scarro A, Chang YF, Balzer J, Soso M, Pless M, Sclabassi R,

Genevro J, Burkhart L. Outcomes Following Microvascular Decompression for Hemifacial Spasm in 121 Patients. *Skull Base: An Interdisciplinary Approach*, Vol. 14, Supplement 1, February 2004.

30. **Kassam AB**, Horowitz MB, Chang YF, Peters D. Molecular Biology of Cerebral Aneurysms. Part II. A Molecular Epidemiology Study of 86 Tissue Samples Suggesting Altered Arterial Homeostasis. *Skull Base: An Interdisciplinary Approach*, Vol. 14, Supplement 1, February 2004.

31. Harris AE, Hadjipanayis CG, Lunsford LD, Lunsford AK, **Kassam AB**. Endoscopic Removal of Intraventricular Lesions Assisted by Stereotactic CT Guidance. *Skull Base: An Interdisciplinary Approach*, Vol. 14, Supplement 1, February 2004.

Local/Regional:

1. Carrau RL, Hegazy HM, Snyderman CH, **Kassam AB**. Transnasal Endoscopic Repair of Cerebrospinal Fluid Rhinorrhea: A Meta-Analysis. The American Laryngological, Rhinological and Otological Society meeting, Pittsburgh, Pennsylvania, February, 2000.
2. Snyderman CH, Carrau RL, Kassam AB, Zweig J, Hegazy H. Endoscopic Repair of Anterior Cranial Base Defects. Pennsylvania Academy of Otolaryngology Head and Neck Surgery, Tenth Annual Meeting, Nemacolin Woodlands Resort, Farmington, PA, June 23-24, 2000.
3. **Kassam AB**, Snyderman C, Carrau R, Sclabassi R, Hirsch B, Horowitz MB. Minimally Invasive Endoscopic Surgery of the Cranial Base and Pituitary Fossa, UPMC Presbyterian Hospital, Pittsburgh, Pennsylvania, January 23-24, 2004.

INVITED LECTURES:

International:

1. **Kassam A.B.** Pituitary tumors: A Multidisciplinary approach. Neuroscience Conferences, Ottawa, Ontario, Canada, 1995.
2. **Kassam AB.** Cushing's Disease: A Consensus Statement. Collins Surgical Day, Ottawa General Hospital, Ottawa, Ontario, Canada, May, 1996.
3. **Kassam AB.** Genetics of Cerebral Aneurysms. Neuroscience Rounds, Visiting Professor, Ottawa General Hospital, Ottawa, Ontario, Canada, June 26, 1998.
4. Jannetta PJ, **Kassam AB.** Advances in Endoscopic Pituitary Surgery. XIII Bi-annual Neurosurgical Congress of South Africa, Bloemfontein, South Africa, October 2, 1998.
5. **Kassam AB.** Endoscopic Skull Base Surgery. VIII Annual South American Advanced Endoscopic Dissection Course of the Paranasal Sinuses, Orbit and Skull Base. Bogota,

Columbia, February 23, 2000.

6. **Kassam AB.** Cerebrospinal Fluid Leaks: A neurosurgical perspective. VIII Annual South American Advanced Endoscopic Dissection Course of the Paranasal Sinuses, Orbit and Skull Base. Bogota, Columbia, February 23, 2000.
7. **Kassam AB.** Approaches to the Clivus. VIII Annual South American Advanced Endoscopic Dissection Course of the Paranasal Sinuses, Orbit and Skull Base. Bogota, Columbia, February 23, 2000.
8. **Kassam AB.** Management of Cavernous Sinus Tumours. VIII Annual South American Advanced Endoscopic Dissection Course of the Paranasal Sinuses, Orbit and Skull Base. Bogota, Columbia, February 23, 2000.
9. **Kassam AB.** Recent Advances in Skull Base Surgery. VIII Annual South American Advanced Endoscopic Dissection Course of the Paranasal Sinuses, Orbit and Skull Base. Bogota, Columbia, February 23, 2000.
10. Carrau RC, **Kassam AB.** Building a Skull Base Team: A neurosurgical perspective. VIII Annual South American Advanced Endoscopic Dissection Course of the Paranasal Sinuses, Orbit and Skull Base. Bogota, Columbia, February 23, 2000.
11. Carrau RC, **Kassam AB.** Endoscopic Pituitary Surgery. VIII Annual South American Advanced Endoscopic Dissection Course of the Paranasal Sinuses, Orbit and Skull Base. Bogota, Columbia, February 23, 2000.
12. Carrau RC, **Kassam A.B.** Esthesio neuroblastoma: diagnosis and treatment, VIII Annual South American Advanced Endoscopic Dissection Course of the Paranasal Sinuses, Orbit and Skull Base, Bogota, Columbia, February 23, 2000.
13. **Kassam AB.** Current Concepts of Endoscopic Instrumentation in Cranial Base Surgery, KLS Martin, Muhleim, Germany, May 15, 2000.
14. **Kassam AB.** An Integrated Research Plan to establish the Safety and Efficacy of Fibrant Sealants in Neurosurgery, Baxter/Immuno Hyland Corporation, Vienna, Austria, May 19, 2000.
15. **Kassam AB.** Evaluation of Skull Base Surgery. Tai Pai, Taiwan, November 20, 2003.
16. **Kassam AB.** Management of Cranial Base Trauma and Tumors Discussion/Hospital Tour. TriService General Hospital, Taichung, Taiwan, November 21, 2003.
17. **Kassam AB.** Minimally Invasive Neurosurgery. Jin-Dian Hotel, Tai Jung, Taiwan, November 21, 2003.
18. **Kassam AB.** Skull Base Surgery Past and Present. Asian Australasian Congress, Singapore, November 23, 2003.

National:

1. **Kassam AB.** New Concepts in Vascular Compression of the Cranial Nerves and Brain Stem, Mainstreaming Neurosurgery, (Key Note Speaker) Southern Medical Association Annual Meeting, New Orleans, Louisiana, November 20, 1998.
2. **Kassam AB.** Advances in Cranial Base Surgery. Neurosurgery Grand Rounds. Visiting Professor, Montefiore Medical Center, Bronx, New York, January 25, 1999.
3. **Kassam AB.** Minimally Invasive Pituitary Surgery. American College of Surgeons 45th Annual Meeting, Pittsburgh, Pennsylvania, April 7, 1999.
4. **Kassam AB.** Advances in Cranial Base Surgery, Neurosurgery Grand Rounds Texas Medical Center, Houston, Texas, March 4, 1999.
5. **Kassam AB.** Neurosurgical Uses of Fibrant Sealants. Baxter/Immuno Hyland Division Annual Meeting, Pasadena, CA, March 8, 1999.
6. **Kassam AB.** Management of Trigeminal Neuralgia. Trigeminal Neuralgia Association (Philadelphia Chapter). Philadelphia, Pennsylvania. November 20, 1999.
7. **Kassam AB.** Cranial Base Surgery: An Overview. KLS Martin, Jacksonville, FL, January 21, 2000.
8. **Kassam AB.** Surgery of the Cranial Nerves, Compass Medical Education Network, Review Course in Neurological Surgery, January 31, 2000.
9. **Kassam AB, Horowitz MH.** Evolution of Microvascular Decompression of Hemifacial Spasm. National Blepharospasm Society Annual Meeting. University of Kentucky, Lexington Kentucky. August 26, 2000.
10. **Kassam AB.** Neurosurgical applications of fibrin sealants. Cambridge Healthtech Institute's 6th Annual Meeting. New Orleans, Louisiana, October 6, 2001.
11. **Kassam AB.** Microvascular Decompression for Cranial Neuropathy: When and When Not to Do It. Wayne State University Visiting Professor Lecture Series. Detroit, Michigan, November 21, 2001.
12. **Kassam AB.** Reconstruction techniques in Cranial Base Surgery. Vail, Colorado, January 23, 2002.
13. **Kassam AB.** Recent Advances in Cranial Base Surgery. Bonzman, Montana, July 29, 2002.
14. **Kassam AB.** Endoscopic Microneurosurgery. The VI Detroit Neurosurgery Symposium: The

Renaissance of Neurosurgery. Wayne State University, Detroit, Michigan. September 13, 2002.

15. **Kassam AB.** Skull Base Approaches and Microvascular Decompression. The Congress of Neurological Surgeons 52nd Annual Meeting, Philadelphia, Pennsylvania. September 22, 2002.

Local/Regional:

1. **Kassam AB.** Neurosurgical Emergencies. Ambulatory Sub-Specialties Course. Department of Neurological Surgery, University of Pittsburgh Medical Center, Department of Neurological Surgery, Pittsburgh, Pennsylvania, August 10, 1998
2. **Kassam AB.** Brain Tumors. Ambulatory Sub-Specialties Course. Department of Neurological Surgery, University of Pittsburgh Medical Center, Department of Neurological Surgery, Pittsburgh, Pennsylvania, August 14, 1998.
3. **Kassam A.B.** Neurosurgical Management of Pituitary Tumors. University Of Pittsburgh Medical Center Endocrinology Conference, Grand Rounds, Pittsburgh, Pennsylvania, September 11, 1998.
4. **Kassam AB.** Cerebral Vasospasm. Critical Care Nursing Rounds. University of Pittsburgh Medical Center, Pittsburgh, Pennsylvania, September 16, 1998.
5. **Kassam AB.** Management of Trigeminal Neuralgia. Trigeminal Neuralgia Association (Pittsburgh Chapter). Pittsburgh, Pennsylvania. September 19, 1998.
6. **Kassam AB.** Stroke Protocol. United Community Hospital Physician Outreach Program, Grove City, Pennsylvania, September 24, 1998.
7. **Kassam AB.** Anterior Base Pitfalls. University of Pittsburgh Medical Center. Department of Otolaryngology Grand Rounds, Pittsburgh, Pennsylvania, October 21, 1998.
8. **Kassam AB.** Stroke Update. UPMC Beaver Valley CME Lecture Series, Aliquippa, Pennsylvania, March 10, 1999.
9. **Kassam AB.** Microvascular Decompression for Cranial Neuropathy. Department of Otolaryngology Grand Rounds. University of Pittsburgh Medical Center, Pittsburgh, Pennsylvania, May, 1999.
10. **Kassam AB.** Diagnosis and Management of Cranial Base Tumors. Continuing Education lecture, Armstrong County Memorial Hospital, Kittanning, Pennsylvania, September 10, 1999.

11. **Kassam AB.** Hydrocephalus: What you need to know from an ENT Perspective. Department of Otolaryngology Grand Rounds, University of Pittsburgh Medical Center, Pittsburgh, Pennsylvania, November 17, 1999.
12. **Kassam AB.** Diagnosis of Vasospasm. Neurovascular Nursing Rounds, University of Pittsburgh Medical Center, Pittsburgh, Pennsylvania, May 3, 2000.
13. **Kassam AB.** Cerebral Vasospasm: Diagnosis and Management. Neurovascular ICU Nursing Teaching Rounds. University of Pittsburgh Medical Center, Pittsburgh, Pennsylvania, October 4, 2000.
14. **Kassam AB.** Evolution of Microvascular Decompression for Hemifacial Spasm. Grand Rounds, University of Pittsburgh Medical Center, Department of Otolaryngology, Pittsburgh, Pennsylvania, April 4, 2000.
15. **Kassam AB.** The Harkom Key Note Address: Update on Stroke Management: Evidence Based Management of Carotid Stenosis. Washington, Pennsylvania, Neurosciences Conference 2000, May 5, 2000.
16. **Kassam AB, Horowitz MB.** Management and Diagnosis of Facial Pain and Facial Tics. St. Margaret's Hospital, Medical Grand Rounds, Pittsburgh, Pennsylvania, April 5, 2001.
17. **Kassam AB, Horowitz MB.** Advances in Cranial Base Surgery Conference, Pittsburgh, Pennsylvania, May 4-5, 2001.
18. **Kassam AB.** Molecular Genetics of Cerebral Aneurysm. Continuing Education lecture, 5th Annual Symposium on Applied Physiology of the Peripheral Circulation, Cerebral Blood Flow: Mechanisms of Ischemia, Diagnosis and Therapy, Pittsburgh Hilton and Towers, Pittsburgh, Pennsylvania, June 9-10, 2001.
19. **Kassam AB.** Management of intraventricular tumors. University of Pittsburgh Medical Center, Neuroscience Grand Rounds, Pittsburgh, Pennsylvania, January 16, 2002.
20. **Kassam AB.** Pituitary Surgery: Multimodal Approach. University of Pittsburgh Medical Center, Endocrinology Grand Rounds, Pittsburgh, Pennsylvania, January 18, 2002.
21. **Kassam AB.** Co-Chairman for Interdisciplinary Problem Solving in Cranio-Maxillofacial Surgery. Skull Base Surgery. Pittsburgh, Pennsylvania, February 23-24, 2002.
22. **Kassam AB.** Trilogy in the Anterior Cranial Base, Combined Neuroscience Conference. Pittsburgh, Pennsylvania, April 3, 2002.
23. **Kassam AB.** Recent Advances in Skull Base Surgery, Eye & Ear Institute Grand Rounds. Pittsburgh, Pennsylvania, September 4, 2002.
24. **Kassam AB.** Molecular Biology of Cerebral Aneurysms. University of Pittsburgh Medical

Center, Neuroscience Grand Rounds, Pittsburgh, Pennsylvania, January 8, 2003.

25. **Kassam AB.** Endoscopic MVD Surgical Procedure. Hemifacial Spasm Association Annual Meeting, Pittsburgh, Pennsylvania, July 19, 2003.

PEER REVIEWED RESEARCH

GRANTS

Current Grant Support:

<u>Source / Type</u>	<u>Grant Title / Number</u>	<u>Role in project and % Effort</u>	<u>Years Inclusive</u>	<u>\$ Amount</u>
NIH / R01	Video Compression for Remote Monitoring of Neurosurgery	Co-Investigator 2%	9/30/03 – 7/31/07	\$191,250.00
NIH / R01	Familial Intracranial Aneurysm Study Grant # R01 NS38554	Site PI 8%	4/1/02 – 3/31/07	\$58,873.00
The Walter L. Copeland Fund of the Pittsburgh Foundation (Private Foundation)	Dizziness after cranial nerve microvascular decompression and dizziness after traumatic brain injury: incidence, severity, and prognosis Grant # D2003-0306	PI - 5%	7/1/02 – 6/30/06	\$24,750.00
Olympus America, Inc. (Corporate Funding)	Image Fusion (No Grant #)	PI - 3%	3/1/02 – 3/31/03	\$10,000.00
NIH / R01 (EB-03-005) Telehealth Technologies Development	Video Compression for Remote Monitoring of Neurosurgery Grant # R01 EB002309-01	Co-Investigator 2%	9/20/03 – 7/31/07	\$1,120,237.00
National Cancer Institute Oncovir, Inc.	A Phase II Trial of Poly ICLC in Patients with Recurrent Anaplastic Glioma (No Grant Number)	Co-Investigator 2%		

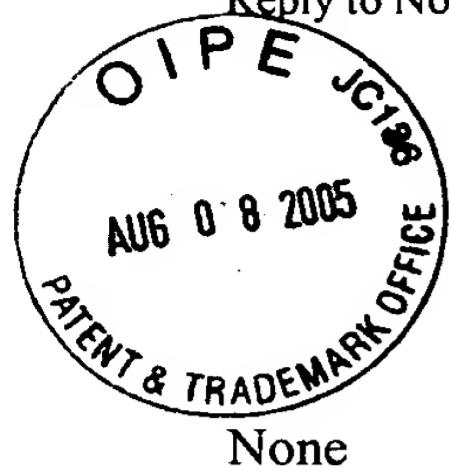
Pending:

<u>Source / Type</u>	<u>Grant Title / Number</u>	<u>Role in project and % Effort</u>	<u>Years Inclusive</u>	<u>\$ Amount</u>
R01 HL074316	Myocardial Ischemia and Vasospasm in Aneurysmal SAH (Horowitz)	Co-Investigator	4/1/04 – 3/31/09	\$1,950,375

Prior Grant Support:

<u>Source / Type</u>	<u>Grant Title / Number</u>	<u>Role in project and % Effort</u>	<u>Years Inclusive</u>	<u>\$ Amount</u>
Target Therapeutics, Inc. (Corporate Funding)	Validation of Canine Venous Pouch Aneurysm Model by Comparison to Pathological Specimens of Human Aneurysms (No Grant #)	PI 5%	7/1/01 - 12/31/02	\$52,540.00
Baxter (Corporate Funding)	Study of the neurocompatability of Tisseel Fibrin Sealant in Primates (No Grant #)	PI 15%	9/1/00 - 8/31/01	\$250,000.00
Macropore, Inc. (Corporate Funding)	Evaluation of MacroPore TS in a Canine Model (No Grant #)	Co-Investigator 5%	11/1/01-10/31/02	\$51,062.00
Seacoast (Corporate Funding)	Safety and Characterization Study of Chiller Button (No Grant #)	PI 5%	12/15/00-1/31/02	\$24,812.00
The Walter L. Copeland Fund of the Pittsburgh Foundation (Private Foundation)	Cerebral aneurysms: Development of a monkey model of hemodynamic stress and gene expression Grant #: D2001-0281	PI 5%	7/1/01 - 6/30/02	\$ 24,750.00

Appl. No. 09/764,609
Appeal Brief dated August 4, 2005
Reply to Notice of July 29, 2005



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